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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,113	07/11/2001	Katsuhiko Mochizuki	1232-01	7939

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IP GROUP OF DLA PIPER RUDNICK GRAY CARY US LLP  
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PHILADELPHIA, PA 19103

EXAMINER

BOYD, JENNIFER A

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/889,113

Applicant(s)

MOCHIZUKI ET AL.

Examiner

Jennifer A. Boyd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9,12-19,21,22 and 24-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9,12-19,21,22 and 24-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. The Applicant's Amendments and Accompanying Remarks, filed April 27, 2005, have been entered and have been carefully considered. Claims 1, 15 and 21 are amended, claims 10 – 11, 20 and 23 are cancelled and claims 1 – 9, 12 – 19, 21 – 22 and 24 – 28 are pending. In view of Applicant's arguments that US 4,956,446 specifically teaches that the breaking extension of 17% or less while the present invention requires a breaking extension of 40% or more, the Examiner withdraws the rejection as detailed in paragraph 8 of the Office Action dated January 13, 2005. Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 112***

4. Claims 1 - 14 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The details of the rejection can be found in paragraphs 2 - 3 of the previous Office Action dated February 5, 2003. The rejection is maintained.

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5. Claims 15 – 19, 21 – 22 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 15 and 21 have the limitation of a “second” heated roll. It is unclear where the first heated roll is. Please clarify the claim language.

***Claim Rejections - 35 USC § 103***

6. Claims 1 – 9, 12 – 13 and 25 – 28 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1). The details of the rejection can be found in paragraph 6 of the Office Action dated January 13, 2005. The rejection is maintained.

Claim 1 has been amended to require that the yarn has a breaking extension of 40% or more. Fujimoto fails to teach that the polyester yarn has a breaking extension of 40% or more. Although Fujimoto does not explicitly teach the claimed properties as described above, it is reasonable to presume that the said properties are inherent to Fujimoto. Support for said presumption is found in the use of like materials (i.e. a polyester fiber comprising 90% or more by weight of a poly(trimethylene terephthalate) (Abstract). Fujimoto teaches that the fiber of the present invention is preferably in the form of a multifilament yarn (section [0025]). Fujimoto teaches that the elastic modulus range, or Young’s modulus, acceptable for the fiber is from 17 to 30 g/d (15.02 – 26.50 cN/dtex), which overlaps the Applicant’s range of no more than 25 cN/dtex (section [0023])) which would result in the claimed properties. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties mentioned above would obviously have been present once the Fujimoto product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1) in view of Matsuo (JP 11-100747). The rejection is maintained. The details of the rejection can be found in paragraph 9 of the previous Office Action dated February 5, 2003.

8. Claims 15 – 19, 21 – 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuah (EP 0745711 A1) in view of Rowan et al. (US 4,851,172).

Chuah is directed to a process for preparing polytrimethylene terephthalate yarns (Title).

As to claim 15, Chuah teaches melt-spinning polytrimethylene terephthalate having an intrinsic viscosity between 0.8 – 1 within the temperature range of 250 – 280 degrees Celsius to produce a plurality of spun filaments, cooling the filaments, converging the filaments, drawing the filaments on rollers and passed in contact with an optional relax roller 12 for the stabilization of the drawn yarn (page 2, lines 1 – 60). Chuah teaches that the yarn is drawn at a relatively low draw ratio between 1.05 – 2 (page 2, lines 45 – 50). Chuah teaches that the stabilized yarn is directly sent to the texturing process such as hot air texturing (page 3, lines 1 – 10).

As to claim 16, Chuah teaches that the polytrimethylene terephthalate has an intrinsic viscosity between 0.8 – 1 (page 2, lines 35 – 40).

As to claim 17, Chuah teaches that the polytrimethylene terephthalate is melt spun at 250 – 280 degrees Celsius and the melting point is between 215 and 230 degrees Celsius (page 2, lines 15 – 45). Therefore, the spinning process is performed between 20 – 50 degrees higher than the melt temperature as required by Applicant.

Chuah fails to teach the details of the relaxation rollers.

Rowan is directed to a process for high speed, multi-end polyester yarn (Title). Rowan teaches manufacturing a multi-filament yarn by extruding, passing the filaments through drawing rolls, then through relaxing rolls and then finally through a conventional air interlacing jet and then wound up (columns 2 and 3). Rowan teaches that the relaxing rolls 7 and 8 can have a matte finish and have a temperature of at least 140 degrees Celsius (column 4). The surface finish value for the rolls can be between 35 and 120 microinches (0.89 – 3.0 micrometers) (column 4, lines 10 – 20). On page 14 of Applicant's Specification, Applicant indicates that 1.5S – 8S is equivalent to 0.8 – 6.3 micrometers as required by claims 15 and 21. Rowan notes that the yarn relaxes between 1 – 10 percent between rolls 5 and 7 as required by claims 15 and 19 (column 4, lines 1- 20). Rowan suggests that the use of heated matte rollers produce a yarn with excellent mechanical qualities (column 4, lines 25 – 40).

Since Chuah lacks disclosure to specific details about the relaxation rollers, it would have been necessary and thus obvious for one of ordinary skill in the art practicing the invention of Chuah to look to the prior art as exemplified by Rowan to provide the details of the relaxation rollers. As heated matte rollers having a temperature of at least 140 degrees Celsius and a surface finish value of 0.89 – 3.0 micrometers which has a relaxation between 1 – 10 percent produces a yarn with excellent mechanical qualities, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heated matte finish relaxation rollers of Rowan in the invention of Chuah, motivated by the expectation of successfully practicing the invention of Chuah.

As to claims 15, 18 and 22, Chuah in view of Rowan discloses the claimed invention except for that the CF value is 1 – 30 and the yarn is hauled-off at a rate of 2000 m/min as required by claim 15, the polytrimethylene terephthalate is hauled-off at a spinning rate of at least 3,000 m/min as required by claim 18 and the drawing temperature is 10 – 50 degrees Celsius higher than the glass transition point as required by claim 22. It should be noted that the haul-off rate, CF value and the drawing temperature are result effective variables. For example, haul-off rate directly affects the crystallinity and strength of the resulting fiber. As the CF value increases, the breakage rate of the yarn increases. The drawing temperature determines the stability and the amount of yarn breaks during manufacturing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a yarn having a CF value is 1 – 30 and the yarn is hauled-off at a rate of 2000 m/min as required by claim 15, the polytrimethylene terephthalate is hauled-off at a spinning rate of at least 3,000 m/min as required by claim 18 and the drawing temperature is 10 – 50 degrees Celsius higher than the glass transition point as required by claim 22 since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955). In the present invention, one would have been motivated to optimize the CF value, the haul-off rate and the drawing temperature in order to create a suitably stable and strong yarn with high resistance to breakage.

As to claims 15 and 24, Chuah in view of Rowan fails to teach that the polyester yarn has

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a breaking extension of 40% or more as required by claim 15 and a strength from a stress/strain curve of at least 3cN/dtex and a breaking extension of at least 42% as required by claim 24.

Although Chuah in view of Rowan does not explicitly teach the claimed properties as described above, it is reasonable to presume that the said properties are inherent to Chuah in view of Rowan. Support for said presumption is found in the use of like materials (i.e. a multi-filament yarn polytrimethylene terephthalate yarn having an intrinsic viscosity between 0.8 – 1 made by the process of extruding filaments, cooling the filaments, converging the filaments, drawing the filaments on rollers, passing in contact with an optional relax roller 12 for the stabilization of the drawn yarn and then hot air texturized. The yarn is drawn at a relatively low draw ratio between 1.05 – 2) which would result in the claimed properties. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties mentioned above would obviously have been present once the Chuah in view of Rowan product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

### ***Response to Arguments***

9. Applicant's arguments filed October 20, 2004 have been fully considered but they are not persuasive.

10. In response to Applicant's arguments that claims 1 – 14 are in compliance with 35 USC 112, the Examiner respectfully argues the contrary. The only chemical and structural limitations in claim 1 is a multi-filament yarn comprising polytrimethylene terephthalate with a CF value of 1 - 30. The other limitations of claim 1 such as strength, Young's modulus, elastic recovery, breaking extension and CV value are properties which a direct result of chemical and structural



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limitations. Therefore, if the Applicant believes that the properties of his invention such as the strength, Young's modulus and elastic recovery of the polytrimethylene terephthalate yarn differ from the yarn of Fujimoto, the Applicant must recite the additional chemical and structural limitations which differentiates his invention from Fujimoto or any other invention that comprises a multifilament polytrimethylene yarn and include those limitations in claim 1. If the said properties are not inherent, it is asserted that the claim must be incomplete. In other words, if the Applicant asserts a lack of inherency in the admitted prior art, then the Applicant's claimed invention is missing an element critical to the invention which would patentably distinguish it from the known prior art. Additionally, claims 2 – 14 are dependent on claim 1 and do not add sufficient chemical and structural limitations to differentiate it from Fujimoto. Therefore, the Examiner assumes inherency for those physical properties as well until the Applicant chemically or structurally differentiates his invention which would provide for the set forth physical limitations.

11. In response to Applicant's argument that the process steps of claim 15 directly affect the physical characteristics of the product of claim 1, the Examiner respectfully argues that claim 1 and claim 15 are distinct independent claims. For instance, Applicant argues that EP'422 does not teach the use of heated rolls with a surface roughness of 1.5S – 8S at 105 – 180 degrees Celsius. It should be noted that claim 1 nor any of its dependent claims require the use of such heated rolls. The heated rolls are a requirement of method claim 15. If the Applicant requires that the product of claim 1 is made by the process of claim 15, the Applicant should amend the claims accordingly.

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12. Applicant's arguments with respect to claims 15 – 19, 21 – 22 and 24 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

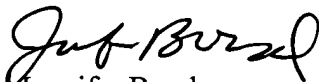
Neal (US 5,277,858) is directed to high tenacity, low shrink polyester fiber (Title). Neal teaches manufacturing a multi-filament polyester yarn in a process comprising drawing, heat treating, relaxing and winding (column 1, lines 5 – 15). Neal notes that an important preferred aspect that the draw/relax rolls have a surface roughness of at least 50 microinches which permit a degree of relaxation to occur during yarn residence on those rolls within the heated enclosure (column 2, lines 60 – 69).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Boyd  
May 16, 2005



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